

As noted in both of those documents, the ongoing delay in U.S. EPA's approval's of IDEM's 2010 303(d) list, which stems from changes IDEM made in response to public comments in 2010 has illustrated that any issues U.S. EPA may have regarding revisions to IDEM's assessment methodologies in response to comments received from the public and corresponding changes to its 303(d) list can be complex, and their resolution can impose significant delays in approval. Therefore, IDEM anticipated that reviewing public comments together with U.S. EPA comments may prove beneficial for both agencies and for this addendum, completed a concurrent review of all comments received by the public and U.S. EPA.

### **U.S. EPA COMMENTS ON IDEM'S 2012 INTEGRATED REPORT AND THE 2012 303(D) LIST SUBMITTED BY IDEM ON APRIL 1, 2012 AND IDEM'S RESPONSES**

1. Appendix A, Table 1 and Table 11. These tables indicate that under the current monitoring program less than 1% of streams were assessed for drinking water use. Does IDEM plan to assess more river miles for the public water supply use for the 2014 report?

*IDEM Response: IDEM's drinking water quality standards apply only to surface waters that are used as drinking water intakes. For streams, this amounts to approximately 100 miles out of a total of more than 45,000 indexed stream miles in Indiana, which is less than 1% of all streams. Therefore, even if IDEM assessed every drinking water intake for drinking water use support, it would not amount to more than 1% of Indiana's stream miles. For surface waters that are used as drinking water intake, IDEM is currently evaluating its methods for drinking water use assessment.*

2. Appendix A, Table 17. Is this table indicating that Lake Michigan is not assessed as a public water supply? If so, why hasn't IDEM considered assessing Lake Michigan for the public water supply use?

*IDEM Response: As noted in IDEM's response to the previous comment, IDEM is currently evaluating its methods for drinking water use assessments for all waterbody types within and outside the Great Lakes basin with the intention of updating its Consolidated Assessment and Listing Methodology. Currently, IDEM's drinking water assessment methodology for lakes and reservoirs relies only on whether or not a drinking water utility has applied for an application to treat the lake prior to withdrawal, and there is no mechanism for follow-up to determine whether a permitted application has taken place. Indiana has water quality criteria for drinking water use that are applicable to Lake Michigan. For waters within the Great Lakes system, the criteria stated in Table 8-3 of 327 IAC 2-1.5-8(b) and articulated in 327 IAC 2-1.5-8(f) apply. IDEM currently monitors five drinking water intakes on Lake Michigan through its fixed station monitoring program, which will likely provide sufficient data for drinking water use support assessments once IDEM develops the necessary methods for evaluating these data and reporting results.*

3. Appendix A, Table 29. The Report Narrative on page 48 indicates that this table hasn't been updated since 2000. EPA recommends that IDEM update this information.

*IDEM Response: This table was populated with information from U.S. EPA's second Candidate Contaminant List (CCL 2). Upon review of the more current CCL 3, IDEM found no significant changes to the contaminant sources in Table 29. IDEM's 2014 Integrated Report will incorporate the results of this review and revise its narrative accordingly.*

4. Appendix A, Table 30. Was this table revised to include an update of state ground water protection programs through 2011? However the title indicates that it was last updated in 2009. EPA recommends that this discrepancy be clarified.

*IDEM Response: IDEM finds no discrepancy. IDEM's report narrative does not state that this table includes an update of state ground water protection programs through 2011. The title on the table is correct. This table was last updated in 2009 and will be updated again in IDEM's next Integrated Report.*

5. Appendix A, Table 31. This table appears to have an incorrect title. It probably should reference the analytical parameters that were detected during the 2008, 2009, and 2010 sampling rounds for the statewide ground water monitoring network based on page 54 of the Report Narrative.

*IDEM Response: The caption that currently appears for Appendix A, Table 31 actually belongs to Appendix A, Table 30. The correct caption for Table 31 is, "Analytical parameters detected in samples collected from 2008-2010 by IDEM's statewide ground water monitoring network."*

6. Appendix B. "Not Attainable" is defined as "Applies to aquatic life use assessments on limited use waters". What does the "size not attainable" column mean in the context of Public Water Supply use support for Lakes? Table 20 appears to show a different summary....maybe a typo in one of the tables?

*IDEM Response: In all the individual use support summary tables (Tables 11, 14, and 20) a zero value is used to indicate that there are no waters (expressed in terms of miles or acres) for which the use is designated as limited in Indiana's water quality standards (WQS). The metadata for the Integrated Report defines "Not Attainable" specifically within the context of aquatic life use because, to date, this is the only use for which Indiana's water quality standards identify waters as "limited". Theoretically, other uses could be identified as limited based on use attainability analyses. Given this, IDEM uses a zero value in this field to indicate that, to date, there are no uses other than aquatic life use identified as limited.*

7. Appendix A, Table 10, page A-12. The summary of Drinking Water Use Support for Rivers and Streams is very comprehensive and includes all applicable contaminants. These same support parameters should also apply to lakes. Currently lakes are only listed as impaired for Drinking Water Use Support based on a water system's application for use of an algaecide to prevent taste and odor problems. EPA suggests that IDEM develop a more robust drinking water assessment methodology that focuses on a subset of parameters that can be used to reasonably assure that the assessment is protective of drinking water use.

*IDEM Response: Methodology development is a lengthy and time-consuming process. Water quality assessments are a data-driven process. Therefore, the first step in developing an assessment methodology is to determine what data are needed for the decision-making process and what data are readily available. With the exception of Lake Michigan, IDEM's current targeted monitoring programs do not include sampling at surface water intakes. In order to obtain sufficient data for drinking water use support assessment, IDEM would have to develop a targeted monitoring program specifically for drinking water facilities and/or rely on external data. In order to do this, IDEM must determine what data are readily available from external parties and expands its monitoring effort (if possible) and must have a defensible assessment methodology in place to evaluate the data. Regarding the latter, the types and quantity of data to be used in assessments would need to be established and the number of exceedances required to*

*trigger impairment would have to be determined. If no numeric criteria have been established for the types of data that are available, IDEM would have to translate the narrative criteria into a consistent decision making process for the purposes of determining use support. In addition to the work required to develop an assessment methodology, for drinking water, there are also potential security issues related to how assessment results are reported that must be taken into consideration.*

*Over the next couple of years, IDEM plans to evaluate its methods for drinking water use support assessments for all waters that are used as drinking water intakes with the intention of developing a more robust method for water quality assessments of drinking water uses. It should be noted that any new methodology will likely require changes to IDEM's water quality monitoring programs, which IDEM may or may not have the resources to implement. Without an increase in the resources available for additional monitoring, implementation of any new assessment methods that IDEM may develop may not be possible without a corresponding decrease in monitoring for the other types of assessments and reporting.*

*This said, IDEM made significant revisions to its monitoring strategy in 2010, and conducts a full review of its strategy every three years to allow for the adaptive management necessary to ensure that existing gaps and new priorities are addressed to the extent possible going forward. It is possible that with IDEM's continued emphasis on finding efficiencies in its monitoring programs, that additional resources may yet be identified. IDEM is also continuing development of its External Data Framework, which when completed, is expected to result in a more robust data set for drinking water use support assessment.*

8. Appendix H, *IDEM's Use of External Data*, Page 4. The information states "The organizations and individuals that submitted data to IDEM in response to the 305(b)/303(d) solicitations in 2007 and 2009 are shown in Table 1." Did IDEM solicit data for the 2012 list? Section 130.7(b) (5) (iii) requires active solicitation of data. If IDEM receives data under the solicitation request they must consider this in the listing process.

*IDEM Response: IDEM's External Data Framework (EDF) and its solicitation processes are still under development. Given this, IDEM did not conduct its solicitation for the 2012 cycle in the same manner as the 2007 and 2009 solicitations were conducted. Instead, IDEM has been actively working with external organizations to increase awareness of the EDF and to invite the submission of water quality data to IDEM at any time until the EDF is fully developed and implemented. Examples of this would include addressing the Indiana Association of Floodplain Managers to explain what the EDF is and to encourage them to submit their data to IDEM, working with cities and towns and meeting with universities, watershed groups and environmental organizations on an individual basis to explain what the EDF is and provide assistance in helping them structure their monitoring programs in a way that will facilitate the submission of their water quality data to IDEM. Please see the attached flyer for the information we are currently providing to external organizations. IDEM has also recently hired a contractor to assist with the development of a technical assistance program for the EDF, which will provide external organizations with training materials intended to help them collect higher quality data and to facilitate the submission of their data to IDEM for review, including:*

- *Water quality study design. This content will provide guidance on how to define study objectives and design a monitoring program that will meet those objectives. In addition, this content will provide guidance on how to select the appropriate sampling strategy, parameters, sampling and analytical methods, and quality control measures to ensure that the data collected are usable for their intended purpose.*

- *Development of quality assurance project plans (QAPPs) based on IDEM's Nonpoint Source Program requirements.*
- *The mechanics of how to submit water quality data and other information through the AIMS/STORET interface provided by IDEM.*

*In addition to these efforts, IDEM has solicited cooperative agreements with the USGS to collect water quality data at some of the same sites sampled by IDEM which is used in 305(b) assessments and 303(d) listing decisions. IDEM also routinely uses data collected by the Clean Lakes Program through a contractual agreement with Indiana University School of Public and Environmental Affairs (SPEA) for its CWA 314 assessments.*

9. Appendix H, *IDEM's Use of External Data*, Page 4. The last paragraph on page 4 states "The external data sets shown in Table 2 meet the necessary data quality requirement as outlined in IDEM's QAPP for 305(b) assessment purposes. If IDEM is able to complete these assessments prior to receiving U.S. EPA approval of the 2012 303(d) lists, any resulting change to the list will be proposed to U.S. EPA for consideration in its approval process." If IDEM is still reviewing changes not subject to public notice, these changes should be considered for the 2014 list to provide the public an opportunity to comment on the changed waters rather than making changes during the U.S. EPA review process.

*IDEM Response: U.S. EPA's process to approve or disapprove of a state's 303(d) list has become far more lengthy than the 30 days required by 40 CFR 130.7 (d)(2) Indeed, IDEM is still awaiting a decision document on its 2010 303(d) list, which is why IDEM considers the list submitted to U.S. EPA on April 1, 2012 to be subject to change. Neither the CWA nor the CFR that guide its implementation prescribe that every change to a state's 303(d) list be public noticed.*

*Further, given the lengthy time between submission of its 303(d) list and completion of U.S. EPA's review, IDEM considers it an unreasonable expectation on the part of U.S. EPA to delay making needed changes in the interim.*

*This said, in the interest of transparency, IDEM does believe that significant changes to its 303(d) list should be presented to the public. For example, IDEM presented information regarding its intention to revise its assessment methodology for mercury in fish tissue at the public hearing on May 23, 2012 during which time the public comment period was still underway. Given the complexity of this change and its anticipated impact on the 303(d) list, although the assessments were not yet completed at the time, IDEM anticipated significant changes to the 303(d) list and as such, IDEM wanted to provide the public with an opportunity to request more information and provide comment if desired. In contrast, IDEM does not anticipate that the changes to the 303(d) list resulting from the data provided by external organizations will be significant once its evaluation of these data are completed. However, regardless of the nature of the changes to IDEM's 303(d) list or their impact on the list, whether they warrant a public notice is up to IDEM's discretion, not that of the U.S. EPA.*

10. Appendix H, *IDEM's Use of External Data*. In Table 1 IDEM lists sources of external data received during the 2007 and 2009 solicitation and Table 2 lists the sources of external data sets determined by IDEM to meet the necessary data quality requirements. Is it correct to assume that the data not included on Table 2 from Table 1 did not meet IDEM's Quality Assurance requirements or are there other reasons for not using the submitted data?

*IDEM Response: There are two reasons why a data set may not be considered by IDEM to be usable for assessment purposes. The primary consideration is whether or not the data meets IDEM's quality assurance requirements. Another consideration is the format in which the*

*data are received. Data must be readily available, which is currently defined by IDEM as requiring little more than the necessary QAQC review to incorporate it into assessments. If the data set requires significant staff resources to get it into a format that is necessary for mapping the data and making assessments, it would not be considered by IDEM to be readily available. IDEM recognizes that if the Agency is to take full advantage of the wide variety of data that external organizations have demonstrated an interest in providing the Agency, IDEM must make its requirements for submission (i.e. formatting, minimum information requirements, etc.) clear and easy to follow. This is one of the primary objectives of IDEM's External Data Framework project currently underway. When fully developed, the External Data Framework will provide templates for external organizations to facilitate submission of their data to IDEM and the documentation of data quality.*

11. Appendix H, *Status of U.S. EPA approval of IDEM's 2010 303(d) List*, Page 7. The last sentence on the second paragraph states that "If U.S. EPA's final decision results in changes to Indiana's 303(d) list, in accordance with IC 13-18-2-3(a), IDEM will publish the changes in the Indiana Register and conduct a public hearing within 90 days of receiving them." The following is a clarifying statement that should be added after that sentence: At that point, IDEM's actions in accordance with IC 13-18-2-3(a) with regards to the 2010 303(d) list are for informational purposes only and should not be mistaken for a re-public notice, because U.S. EPA's decision regarding Indiana's 2010 303(d) list would be final.

*IDEM Response: It is IDEM's position that the language and intent of IC 13-18-2-3(a) as well as IDEM's statement of its intention regarding how the Agency will proceed once U.S. EPA's final decision regarding either IDEM's 2010 or 2012 303(d) list is received are sufficiently clear.*

12. Appendix H, *Waterbody Impairments Proposed to be Added to Category 5 on the Basis of Information Received Since the 2010 303(d) List was Submitted to U.S. EPA*, Page 9. The first paragraph states that IDEM proposes to add a total of 220 impairments to Category 5. Are these 220 impairments part of the 1,111 discussed on page 8?

*IDEM Response: No. As Table 6 of the public notice suggests, the 220 impairments added to the 303(d) list are based on information received since the 2010 303(d) list was submitted to U.S. EPA and are not part of the 1,111 impairments added back as a result of resegmentation. The public notice incorrectly references Attachment 7 for both of these changes. Attachment 7 of the public notice identifies all of the additions made based on changes in segmentation while Attachment 8 identifies those made based on information received since the 2010 303(d) list was submitted to U.S. EPA.*

13. Appendix H, *Waterbody Impairments Proposed to be Added to Category 5 on the Basis of Information Received Since the 2010 303(d) List was Submitted to U.S. EPA*, Table 7. The number of water bodies impaired for temperature went from 14 in 2010 to a proposed 0 in 2012. Are the waterbodies in the 2010 list now meeting temperature water quality standards? According to Attachment 6 these waterbodies impaired for temperature are proposed to be removed from Category 5 based on new information received. Since these waterbody segments are located in the Ohio River basin, is IDEM basing these proposed removals on ORSANCO's assessment determinations? If so, IDEM will need to reassess these waters using a methodology approach that considers biological data independently from the temperature data on a site by site basis before it can properly determine if these waters can be removed from the list. See comment 16 below for additional information on this topic.

*IDEM Response: IDEM concurs with ORSANCO's use of the weight of evidence approach in evaluating temperature data. However, this is not the reason behind the removal of the Ohio River temperature impairments identified on the 2010 303(d) list. All of the fourteen (14) previously identified impairments were removed based on IDEM's resegmentation of the Ohio River and the resulting reassessment. For the 2012 cycle, IDEM reevaluated its methods of applying temperature results from the in-situ monitors located on the dams along the Ohio River, most of which are located at the lower end of a given pool on the upstream side of the dam. Previously, results from a single monitor were applied in an upstream direction to the entire pool in which they were located, resulting in significant over-extrapolation of the data over distances of 25-95 miles. IDEM has determined that given the size and volume of each pool, extrapolating temperature results over these distances is not representative of water quality conditions in the Ohio River. To address this issue, IDEM has limited extrapolation of data collected from ORSANCO's in-situ meters to the reaches on which they are located, which results in extrapolations over distances of approximately two to six miles. Although the resegmentation of the Ohio River was conducted in 2010, the resulting reassessment was not completed until 2012. Limiting the extrapolation of the data to the reach on which the monitor is located results in far more accurate assessment of water quality conditions.*

14. Appendix H, *Revisions to IDEM's Reach Index*, Page 15. The third paragraph states that "IDEM will complete its high resolution Reach Index prior to the 2012 integrated report cycle." Has IDEM completed this or are segments going to change based on the final proposed submittal of the list after the close of the public comment period? If there are changes, IDEM needs to identify these changes with the final submittal package to EPA.

*IDEM Response: The third paragraph contains a typographical error. IDEM will not complete its high resolution Reach Index prior to the 2012 integrated report cycle. It is anticipated that this work will require at least one more cycle and possibly two depending on the availability of staff resources and the amount of work required to perform a comprehensive quality assurance review, make any necessary corrections, and to finalize a comprehensive segmentation tracking system for the entire state. In the meantime, to avoid further complicating the U.S. EPA's review, IDEM has not made any additional segmentation changes with this addendum and will not be submitting any additional changes in segmentation for the 2012 cycle.*

15. Appendix H, Table 1-B.

A. For the Toxicant. support 1 in 3 year period. Is this consecutive years or most recent 3 years. If consecutive years, does IDEM collect enough samples to allow this assessment to be made?

*IDEM Response: Per U.S. EPA guidance, IDEM reviews the most recent five years' worth of chemistry data available for making its aquatic life use assessments. IDEM's assessment methodology for toxicants accommodates both large and small data sets. Much of the data IDEM has for toxicants comes from the Agency's fixed station monitoring program. This program conducts monthly monitoring at more than 160 stations throughout the state, which typically provides approximately 60 results for each station during the most recent five year period. With fixed station data sets, use support is determined by looking at all the exceedances (if any) of a given toxicant and when they occur over the five year period of record. If any two exceedances occur within three years of each other at any point within the five year period of record, the waterbody is assessed as impaired for that toxicant. IDEM also uses data collected through its Probabilistic Monitoring Program, which provides comparatively far less data with which to make an assessment. Within the five year period of record, the Probabilistic Monitoring*

*Program monitors a given location during one season only, typically providing three results for each site. With these data sets, two or more exceedances of a given toxicant will result in an assessment of impairment.*

B. For the conventional pollutants, it is not clear that the methodology is consistent with the water quality standards for criteria which are never to exceed?

a. Under IDEM's methodology, a waterbody is considered to be "Fully Supporting" for dissolved oxygen, when one or more samples are <4mg/L, but no more than 10% of all measurements are <5mg/L. IDEM's water quality criteria for dissolved oxygen has an instantaneous minimum of 4 mg/l and daily average of 5 mg/l, however the assessment methodology for dissolved oxygen (DO) has no absolute minimum and as written doesn't appear to include a daily average. IDEM should clarify if the <5mg/L identified in the assessment methodology is applied on a daily average, and how allowing one or more samples <4mg/L is consistent with the development or adoption of their water quality standards. IDEM should clarify how its methodology is consistent with 327 IAC 216(5)(b)(3).

*IDEM Response: IDEM's water quality standards state that dissolved oxygen must average at least 5 mg/L per calendar day and never fall below 4.0 mg/L. With regard to the 5 mg/L daily average, IDEM does not have the resources to conduct continuous dissolved oxygen monitoring such that a daily average value can be calculated. Therefore, IDEM's methodology does not include a daily average. And, implementing the 4 mg/L, never-to-exceed criterion in a defensible manner is difficult because dissolved oxygen is temperature-dependent, and the time of day at which the data are collected and the season during which sampling is conducted can significantly bias results. Given these realities, IDEM's methodology requires additional evidence that dissolved oxygen is actually and consistently low enough to impair aquatic life use. This is reflected in the requirement that more than 10% of all measurement must exceed 5 mg/L in order to trigger an impairment decision. As almost all of the dissolved oxygen data available for assessments are from individual daily samples, this decision rule is applied to individual results. Were IDEM to obtain sufficient data to calculate a reliable daily average, IDEM would apply the 5 mg/L water quality criterion as articulated in the WQS.*

b. Under IDEM's methodology, a waterbody is considered to be "Fully Supporting" for *E. coli*, when the geometric mean does not exceed 125 cfu/100ml and no more than one sample >576 cfu/100ml on not less than five samples equally spaced over a 30-day period; or no more than 10% of measurements >576 cfu/100ml and not more than one sample >2,400 cfu/100ml on grab samples. IDEM's water quality criteria for *E. coli* (327 IAC 2-1-6 (5) (d) (3)) states that the geometric mean should not exceed 125 cfu/100ml and no more than one sample >235 cfu/100ml on not less than five samples equally spaced over a 30-day period; when five equally spaced samples are not available, then in at least ten samples at a given site, up to 10% of the samples may exceed 235 cfu/100ml. IDEM should clarify how the 576 cfu/100ml is consistent with the 235 cfu/100ml in their water quality standards.

*IDEM Response: Based on the extreme variability of E. coli in the aquatic environment, IDEM has determined that one exceedance of 235 cfu/100 ml does not necessarily indicate impairment. IDEM first articulated its use of U.S. EPA's 1986 Ambient Water Quality Criteria for Bacteria (U.S. EPA 1986) in its 2006 CALM. Both the 235 cfu/100 mL and 576 cfu/100 mL values were developed by U.S. EPA. The 125 cfu/100 mL value is the single sample maximum*

*allowable density for designated beach areas and was developed with a 75% confidence level. The 576 cfu/100 mL is the analogous value for waters infrequently used for full body contact recreation and was developed at a 95% confidence level. IDEM does not currently monitor bathing beaches and therefore considers the 576 cfu/100 ml appropriate for assessment purposes. It should be noted that although the CALM does not state this, for any E. coli data collected at designated beaches, IDEM would apply the 235 cfu/100 mL value instead of the 576 cfu/100 mL value in its assessment decision. IDEM will therefore revise the CALM accordingly.*

C. Under Benthic aquatic Macroinvertebrate Index of Biotic Integrity (mIBI), should “Fully Supporting” be  $mIBI \geq 36$  instead of  $mIBI > 36$ ?

*IDEM Response: Yes. This is a typographical error that will be corrected.*

D. For the Recreational Use Support section for Natural Lakes first box under not supporting, do the associated Chla values for all samples need to be  $> 20 \text{ ug/l}$  or just those samples that have TP values  $> 54 \text{ ug/l}$ ?

*IDEM Response: IDEM's methodology relies on paired Chla and TP data. A minimum of three years' worth of data is considered sufficient for assessment purposes provided each TP value has a corresponding Chla value. This methodology reflects how the 2008 benchmarks (as well as the TP and Chla criteria being proposed in IDEM's current rulemaking) were developed by Limnotech, which used only paired TP and Chla data in its analysis.*

E. For the Recreational Use Support section for Natural Lakes the second and third boxes under not supporting is the Chla value correct at  $4 \text{ ug/l}$ ?

*IDEM Response: Yes.*

F. For the Recreational Use Support section for Reservoirs first box under not supporting, do the associated Chla values for all samples need to be  $> 25 \text{ ug/l}$  or just those samples that have TP values  $> 51 \text{ ug/l}$ ?

*IDEM Response: In this scenario, fewer than 10% of all TP values may be  $> 51 \text{ ug/L}$ , but if their associated Chla values are  $> 25 \text{ ug/L}$  and the TSI score for the lake indicates eutrophic or hypereutrophic conditions, the reservoir is assessed as impaired.*

G. For the Recreational Use Support section for Reservoirs the second and third boxes under not supporting is the Chla value correct at  $2 \text{ ug/l}$ ?

*IDEM Response: Yes.*

16. Appendix H, Page 21 -24. IDEM states that it uses ORSANCO's methodology and data for Ohio River listings. EPA disagrees with ORSANCO's methodology for impairment determination. ORSANCO uses a weight-of-evidence approach for its assessment of water quality standards attainment in which biological data (fish data) override water chemistry data in determining impairment. EPA's guidance does not support this approach. IDEM needs to reconsider its use of the ORSANCO data. IDEM should apply the biological information independently from the water chemistry data to make attainment decisions. IDEM needs to look at all the data for each segment and determine whether they violate any water quality standard. IDEM cannot discount a violation because the fish communities are meeting applicable criteria when the water chemistry is not meeting applicable criteria. In addition, ORSANCO is currently only using a single biological assemblage (fish biotic index) and the attainment threshold chosen by ORSANCO seems to merit some concern for being too low. Because of this, the effects of

chemical violations may not be apparent because they are not measuring impacts on other biological groups like macroinvertebrates. Furthermore, ORSANCO aggregates the data for listing determinations rather than looking at data for each reach to make the determination. The data should be considered on a site-by-site basis and not aggregated to a reach, because the site information may be indicating a local impact. ORSANCO's use of pools is based on what the Commission considers a representative unit of assessments for the biological communities sampled. Thus, for biological assessments, a pool is indeed synonymous with a reach as defined by U.S. EPA.

*IDEM Response: IDEM actively participates in ORSANCO's 305(b) quality assessment processes. Every two years, ORSANCO prepares a description of the proposed methodology for review by the 305(b) workgroup, which is made up of state agency personnel in each member state and one or more U.S. EPA representatives responsible for reviewing state reports. When the 305(b) workgroup reaches agreement on the methodology, it is submitted to ORSANCO's technical committee for review and approval. IDEM has technical staff persons that serve on both the 305(b) Work Group and the Technical Committee. IDEM participated and supports ORSANCO's assessment methodologies for the 2012 cycle including its use of a weight of evidence approach.*

*Biological assessments provide a direct measure of the health of the aquatic ecosystem. Such assessments are able to detect impacts that may be occurring as a result of non-chemical stressors such as temperature, low dissolved oxygen levels and/or combined impacts of chemical stressors that may be occurring at concentrations not exceeding any water quality standard. ORSANCO's fish community assessments of the Ohio River use the modified Ohio River Fish Index (mORFIn), which was developed based on the nationally used Index of Biotic Integrity (IBI) designed to assess smaller streams. The mORFIn has been customized to assess the Ohio River, with expected values developed for the different habitats found in this large river system. The mORFIn combines various attributes of the fish community to give a score to the river based on its biology. The total score is compared to an expected score, which varies depending on the habitat type and location.*

*When monitoring the fish community, ORSANCO randomly selects fifteen sites in each pool, which when combined into one score, provides a robust and representative result for the entire pool. The most recent mORFIn scores for the pools noted above all ranged from good to very good. IDEM maintains that these results provide a far more direct and accurate measure of the degree to which the Ohio River supports aquatic life use than dissolved oxygen and temperature data from monitors located on the upstream end of five dams can independently provide.*

*IDEM believes the decision made by ORSANCO's Technical Committee to use the weight of evidence approach in its assessments of dissolved oxygen and temperature to be scientifically defensible. Given this, IDEM maintains that its application of the resulting assessments to the reaches of the Ohio River that border Indiana in its Integrated Report and 303(d) listing processes is appropriate and has carefully considered the implications of its decision.*

*With regard to ORSANCO's methods for aggregating data, IDEM agrees that for biological assessments, a pool is indeed synonymous with a reach as defined by U.S. EPA. However, it is IDEM's prerogative to define waterbody reaches for the purposes of its assessment and listing processes. In 2010, IDEM resegmented the Ohio River that borders Indiana in order to more accurately apply ORSANCO's assessments. In order to apply ORSANCO's assessments, IDEM does not aggregate chemistry data by pool because they are collected at targeted locations and cannot be shown to be statistically representative of the entire pool in which they were collected. In contrast, the fish community sampling locations are*

*randomly selected allowing confident aggregation of the results from each site into one assessment. Scores are provided for each location and then aggregated into one result for the entire pool. IDEM concurs with this approach.*

17. Appendix H, Table 1-C.

A. For the Toxicants. Is a waterbody fully supporting or not supporting if the number of samples exceeding applicable criteria equals 10%?

*IDEM Response: For toxicants, IDEM does not evaluate the number of exceedances in terms of the percentage of results exceeding due to the significant differences in the size of the data sets used to make its assessments. U.S. EPA's guidelines for the use of toxicant data in making water quality assessments recommends that states use their discretion when evaluating data sets with fewer than ten samples collected over a three-year period (U.S. EPA, 1997).*

*Although the approach cited above could be confidently applied to Fixed Station data sets, it cannot be confidently applied to the minimal data sets provided by IDEM's Probabilistic Program because a single exceedance would trigger impairment. Using minimum data sets consisting of only three results does not allow for the analysis necessary to determine if a single exceedance is an anomaly or indicative of true impairment. Given this, IDEM does not apply the 10% rule. Applying instead the rule of no more than one exceedance in a three year period is more scientifically defensible with smaller data sets and is more stringent with larger, fixed station data sets since applying the 10% rule would allow up to six exceedances over a five year period.*

B. For DO and Temperature. IDEM appears to be using a weight of evidence approach. Under this approach there could be violations of either parameter, but if the fish data are not showing impairment, the DO or temperature impairment will not be listed. If the chemistry data indicates violation of the WQS, IDEM needs to list the water even if the fish data are currently meeting the biological thresholds.

*IDEM Response: IDEM concurs with ORSANCO's use of the weight of evidence approach in evaluating dissolved oxygen and temperature data. However, this is not the reason behind the removal of the Ohio River dissolved oxygen and temperature impairments identified on the 2010 303(d) list. All of the Ohio River dissolved oxygen and temperature impairments were removed based on IDEM's resegmentation of the Ohio River and the resulting reassessment. For the 2012 cycle, IDEM reevaluated its methods of applying temperature results from the in-situ monitors located on the dams along the Ohio River, most of which are located at the lower end of a given pool on the upstream side of the dam. Previously, results from a single monitor were applied in an upstream direction to the entire pool in which they were located, resulting in significant over-extrapolation of the data over distances of 25-95 miles. IDEM has determined that given the size and volume of each pool, extrapolating chemical and physical results over these distances is not representative of water quality conditions in the Ohio River. To address this issue, IDEM has limited extrapolation of data collected from ORSANCO's in-situ meters to the reaches on which they are located, which results in extrapolations over distances of approximately two to six miles. Although the resegmentation of the Ohio River was conducted in 2010, the resulting reassessment was not completed until 2012. Limiting the extrapolation of the data to the reach on which the monitor is located results in far more accurate assessment of water quality conditions.*

*As noted in its CALM, IDEM defers to ORSANCO for its assessments of the Ohio River and its assessment methodology for evaluating dissolved oxygen and temperature data, which*

*employs a weight of evidence approach where there are biological results indicating full support.*

*Biological assessments provide a direct measure of the health of the aquatic ecosystem. Such assessments are able to detect impacts that may be occurring as a result of non-chemical stressors such as temperature and low dissolved oxygen levels and/or combined impacts of chemical stressors that may be occurring at concentrations not exceeding any water quality standard. ORSANCO's fish community assessments of the Ohio River use the modified Ohio River Fish Index (mORFIn), which was developed based on the nationally used Index of Biotic Integrity (IBI) designed to assess smaller streams. The mORFIn has been customized to assess the Ohio River, with expected values developed for the different habitats found in this large river system. The mORFIn combines various attributes of the fish community to give a score to the river based on its biology. The total score is compared to an expected score, which varies depending on the habitat type and location.*

*Based on the dissolved oxygen data assessed for the 2012 cycle, there were violations at two of the eight monitoring stations located along stretch of the Ohio River bordering Indiana. The stations with violations are located on the following reaches:*

- *INH2\_01 located in the Markland Pool;*
- *INH5\_15 located in the Cannelton Pool.*

*Based on the temperature data assessed for the 2012 cycle, there were violations at four of the eight monitoring stations located along the stretch of the Ohio River bordering Indiana. The stations with violations are located on the following reaches:*

- *INH3\_12 located in the McAlpine Pool;*
- *INH5\_15 located in the Cannelton Pool;*
- *INH6\_10 located in the Newburgh Pool;*
- *INH8\_12 located in the John T. Myers Pool.*

*When monitoring the fish community, ORSANCO randomly selects fifteen sites in each pool, which when combined into one score, provides a robust and representative result for the entire pool. The most recent mORFIn scores for the pools noted above all ranged from good to very good. IDEM maintains that these results provide a far more direct and accurate measure of the degree to which the Ohio River supports aquatic life use than dissolved oxygen and temperature data from monitors located on the upstream end of five dams can independently provide.*

*IDEM believes the decision made by ORSANCO's Technical Committee to use the weight of evidence approach in its assessments of dissolved oxygen and temperature to be scientifically defensible and maintains that IDEM's application of the resulting assessments to the reaches of the Ohio River that border Indiana in its Integrated Report and 303(d) listing processes is appropriate.*

**C. The Fish Consumption Use Support section of the table also demonstrates a weight of evidence approach which is not consistent with EPA policy. IDEM needs to list if the water column data demonstrates a violation even if the fish currently are not impacted.**

*IDEM Response: IDEM concurs with ORSANCO's use of the weight of evidence approach in evaluating water column data for total mercury. Fish tissue levels are an indicator of more direct impacts to individuals consuming fish from the Ohio River while mercury in the water column are more an indicator of potential bioaccumulation in fish than direct impacts from consumption. Based on this, in cases where there are conflicting results for fish tissue and water column data, the fish tissue data are given more weight in the assessment decision. Given*

*the differences in the information that these indicators provide, IDEM considers this approach to be more scientifically defensible than one in which independent applicability is applied.*

18. Appendix H, Table 1-R, Page 48. This table suggests that ORSANCO's pH criteria are more stringent, when in fact IDEM's pH criteria are more stringent. pH (standard units) ORSANCO Not to exceed average concentration at least 5.0 for each calendar day; minimum concentration not <4 at any time IDEM No value <6.0 nor >9.0

*IDEM Response: The information for pH in this table is incorrect. ORSANCO's criteria for pH are identical to Indiana's. This information will be corrected in any future documents that use this table.*

19. U.S. EPA disagrees with IDEM's revised assessment methodology with regard to derived criteria, and as discussed in comments on IDEM's 2010 303(d) list1 believes that it is appropriate for IDEM to use derived criteria for 305(b) assessments and 303(d) listing decisions. EPA's review of Indiana's 2010 303(d) list is ongoing. Any changes to Indiana's 2010 303(d) list made by EPA, with regards to waterbody segments/impairments listings, will need to be reflected on Indiana's 2012 list, unless "good cause" for not including these changes on the list can be demonstrated.

*IDEM Response: IDEM maintains its decision to not use derived criteria in CWA Sections 305(b)/303(d) assessment and listing processes or for TMDL development until they have gone through the rulemaking process.*

20. U.S. EPA disagrees with IDEM's revised assessment methodology with regard to total metals, and as discussed in comments on IDEM's 2010 303(d) list believes that it is appropriate for IDEM to use currently available total recoverable metals data for 305(b) assessments and 303(d) listing decisions. EPA's review of Indiana's 2010 303(d) list is ongoing. Any changes to Indiana's 2010 303(d) list made by EPA, with regards to waterbody segments/impairments listings, will need to be reflected on Indiana's 2012 list, unless "good cause" for not including these changes on the list can be demonstrated.

*IDEM Response: IDEM maintains that its decision not to compare total metals data to the dissolved metals criteria articulated in Indiana's Water Quality Standards for the purposes of making CWA Sections 305(b)/303(d) assessment and listing decisions is appropriate.*

21. There are a series of typographical errors:

A. Appendix H, Page 21. The second to last paragraph "For the 2010 cycle, IDEM has completed a thorough review..." Should this be changed to 2012?

*IDEM Response: This is not a typographical error. The criteria comparisons IDEM referred to in this paragraph occurred in 2010.*

B. Appendix H, Page 29. Last bullet, spell out SPEA.

*IDEM Response: "SPEA" is not a typographical error. It is an acronym that is defined in IDEM's Integrated Report as Indiana University's School of Public and Environmental Affairs.*

C. Appendix H, Page 42. There is a typo in the second line of the last bullet ". . . when there is there is reason . . .", the second there is should be deleted.

D. Appendix H, Page 43. There is a typo in the first paragraph ". . . the development of and TMDL . . .", the and should be a.

E. Appendix H, Table 1-P, Page 46. There is a typo on Indiana's criterion concentration for arsenic. It has a negative value (-190).

*IDEM Response: IDEM appreciates the thoroughness of U.S. EPA's review but Appendix H contains IDEM's legal notice of public comment period for the draft 2012 303(d) list, which was published in the Indiana Register on February 8, 2012 and not subject to revision.*

22. Inquiries about specific waterbody segments/impairments listing/delisting issues: EPA focused its comments on the methodology used in making listing determinations. EPA plans to submit any additional comments regarding specific waterbody segments/impairments issues once it completes a waterbody by waterbody review of Indiana's 2012 proposed list.

*IDEM Response: IDEM looks forward to receiving the results of U.S. EPA's full review of IDEM's 2012 303(d) list and working with U.S. EPA to facilitate its issuance of a decision regarding both IDEM's 2010 and 2012 303(d) lists.*

<sup>1</sup> See Letter from Peter Swenson, Chief of Watersheds and Wetlands Branch at U.S. EPA, to Marylou Poppa Renshaw, Chief of Watershed Assessment and Planning Branch at IDEM, dated June 30, 2011.

<sup>2</sup> See Footnote 1.

## **PUBLIC COMMENTS ON IDEM'S DRAFT 2012 303(D) LIST PUBLISHED ON FEBRUARY 8, 2012 AND IDEM'S RESPONSES**

The Indiana Department of Environmental Management (IDEM), Office of Water Quality is required by Section 303(d) of the federal Clean Water Act to assess its waters for compliance with the state's water quality standards and periodically prepare and make public a list of those waters not meeting water quality standards. On February 8, 2012, IDEM published its draft 2012 303(d) list of impaired waters with an initial ninety (90) day public comment period from February 8, 2012, through May 8, 2012, for submission of comments on the draft 303(d) list of impaired waters. In the interest of providing more time for Indiana citizens and other interested parties to review the list and provide comment, the public comment period was extended to May 31, 2012. IDEM received comments from the following parties during the comment period:

Alliance for the Great Lakes (AGL)  
Citizens Energy Group (CEG)  
Environmental Law and Policy Center (ELPC)  
Indianapolis Power and Light (IPL)  
Indiana Utility Group (IUG)  
Ohio River Valley Sanitation Commission (ORSANCO)  
Sierra Club, Hoosier Chapter (SC)

Full text copies of these comments are provided in Attachment 2 of this Addendum. The following is a summary of the comments received and IDEM's responses thereto:

### **Reach-Specific Comments**

Comment: The E. coli impairment for INW01C2\_T1001 (containing the entire watershed of Bean Creek from the headwaters near Orange and Irvington Streets to the confluence with Pleasant Run in Garfield Park) should be moved from Category 5A to Category 4A based on completion of the required TMDL. (CEG)

*IDEM Response: INW01C2\_T1001 was previously indexed as INW01D4\_T1119. IDEM has not developed a TMDL for this impairment. U.S. EPA's approval letter for the Pleasant Run*

*TMDL, located online at: [http://www.in.gov/idem/nps/files/tmdl\\_plrun\\_decision.pdf](http://www.in.gov/idem/nps/files/tmdl_plrun_decision.pdf), indicates that the TMDL for Bean Creek will be completed at a later time. INW01C2\_T1001 will therefore remain in Category 5A.*

Comment: The E. coli impairment for INW1C1\_01 (White River from the confluence with Fall Creek to Morris Street) should be moved from Category 5A to Category 4A based on completion of the required TMDL or to Category 4B based on the Indianapolis Long Term Control Plan and septic tank elimination programs currently planned or underway. The LTCP provides strategies for controlling CSO discharges in this watershed and which might be expected to result in the attainment of water quality standards in a reasonable period of time. (CEG)

*IDEM Response: INW01C1\_01 was originally indexed as INW01D2\_M1059. IDEM has verified that the TMDL for this impairment has been approved (West Fork White River (Marion County to Waverly). The E. coli impairment for INW01C1\_01 will therefore be removed from the 2012 303(d) list.*

Comment: The E. coli impairment for INW0194\_03 (Fall Creek from the confluence with Devon Creek to the confluence with White River) should be moved from Category 5A to Category 4A based on completion of the required TMDL or to Category 4B based on the Indianapolis Long Term Control Plan and septic tank elimination programs currently planned or underway. The LTCP provides strategies for controlling CSO discharges in this watershed and which might be expected to result in the attainment of water quality standards in a reasonable period of time. (CEG)

*IDEM Response: This reach of Fall Creek was previously indexed as INW01B6\_T1051. IDEM has verified that the TMDL for this impairment has been approved (see Fall Creek TMDL). The E. coli impairment for INW0194\_03 will therefore be removed from the 2012 303(d) list.*

Comment: INW01A6\_T1002, currently labeled by IDEM as "Broad Ripple Tributaries" is actually the Indianapolis Central Canal, which is owned by Citizens Water. This canal diverts water from the White River at Broad Ripple for drinking water purposes and is not a tributary to White River. The Indianapolis Central Canal crosses over Fall Creek via an aqueduct, which does have a spillway from the Central Canal to Fall Creek in the event of high water levels/low water demand. This assessment unit should be renamed to reflect the actual and common name and should be extended slightly to reflect the actual extent of the waterbody. The Indianapolis Central Canal is not physically connected to the downtown Canal as shown in IDEM's TMDL map shapefile. In addition, this assessment unit derives its water from the White River in Broad Ripple. (CEG)

*IDEM Response: IDEM has verified that the Indianapolis Central Canal is not physically connected to the downtown Canal, which flows into the White River at its downstream end. IDEM's revisions to its reach index are still underway, and this reach is located in the Upper White River basin (05120201) that has not yet been re-indexed. During the re-indexing process, in addition to re-indexing each stream reach to better support representative assessments, IDEM also evaluates assessment unit names. IDEM will consider these recommendations regarding revisions to the name and length of the Indianapolis Central Canal when re-indexing work is undertaken for the Upper White River basin.*

Comment: The E. coli impairment for INW01A6\_T1002 should be moved from Category 5A to Category 4A based on completion of the required TMDL or to Category 4B based on the

Indianapolis Long Term Control Plan and septic tank elimination programs currently planned or underway. The LTCP provides strategies for controlling CSO discharges in this watershed and which might be expected to result in the attainment of water quality standards in a reasonable period of time. (CEG)

*IDEM Response: As noted in the previous comment, INW01A6\_T1002 represents the Indianapolis Central Canal, which was previously indexed as INW0198\_T1056. IDEM has verified that the TMDL for this impairment has not yet been developed and therefore may not be moved from Category 5A to Category 4. CEG's suggestion that this impairment may be moved to Category 4B based on Indianapolis' Long Term Control Plan is not unreasonable. However, IDEM is still evaluating U.S. EPA guidance with regard to the information that will be required to support a Category 4B listing and intends to explore this option more fully if time allows for the 2014 cycle. In the meantime, this impairment must remain in Category 5A.*

Comment: INW02A3\_M1052 and INW01G1\_M1092 resegmented into INW01F3\_01 and INW01F3\_02?); INW01D6\_M1075 are listed for mercury and PCBs in fish tissue based on water quality standards-based assessment thresholds that IDEM uses to determine impairment. IDEM's development of these thresholds is not legally authorized and is improper under Indiana administrative law. (IPL)

*IDEM Response: INW01G1\_M1092 was re-indexed as INW01F3\_01, not also as INW01F3\_02. IDEM's listing of all the reaches in question for PCBs is scientifically and legally defensible. See IDEM's responses to IPL's comments in the following section.*

Comment: All three of the specific reaches that IPL reviewed are listed for mercury and PCBs in fish tissue based on water quality standards-based assessment thresholds that IDEM uses to determine impairment. IDEM's development of these thresholds is not legally authorized and is improper under Indiana administrative law. (IPL)

*IDEM Response: IDEM maintains that the use of its benchmarks for mercury and PCBs in fish tissue and its biological benchmarks are scientifically and legally defensible for the purposes of 305(b) and 303(d) assessment and listing processes under both state law and federal regulation. (See also IDEM's response to IPL's general comments on IDEM's Consolidated Assessment and Listing Methodology in the following section.)*

### **General Comments on IDEM's Consolidated Assessment and Listing Methodology**

Comment: The current phosphorus threshold of 54 ug/L for natural lakes that IDEM uses to assess recreational use support within the context of aesthetics does not meet the phosphorus target recommended of 7 ug/L by the Great Lakes Water Quality Agreement for Lake Michigan. (AGL)

*IDEM Response: IDEM is currently developing numeric criteria for total phosphorus and algae (chlorophyll a) for natural lakes and reservoirs. Once the numeric criteria are adopted, they will replace the 54 ug/L benchmark for total phosphorus for natural lakes. Although it is not as low as the phosphorus target cited in the Great Lakes Water Quality Agreement for Lake Michigan, the draft criterion of 25 ug/L for total phosphorus in natural lakes is far more stringent than the benchmark currently in use.*

Comment: The phosphorus threshold criteria and assessment process used by IDEM does not cover other potential impairment conditions on Lake Michigan's shoreline that are accounted for in the water quality standards. Because the waters of the Great Lakes are set apart from other Indiana waters in the water quality standards, IDEM should develop a separate assessment

methodology to meet these separate criteria. In order to meet Indiana's narrative water quality standards regarding algae and floating debris articulated in 327 IAC 2-1-6(a)(1), this assessment methodology should take into account shoreline and near shore algal levels and floating debris which can impact aesthetics and thus use of the lake for recreational purposes. Such a method should include a visual inspection and processes for collecting and evaluating algae data and criteria for making impairment decisions such as those used in Beach Sanitary Surveys and methods for evaluating floating debris and onshore litter such as those employed in the Alliance's Adopt-A-Beach program. (AGL)

*IDEM Response: IDEM appreciates the recommendations made by the Alliance for the Great Lake regarding the development of a separate assessment methodology specifically for making assessments of recreational use support for Lake Michigan and its shoreline. The narrative and numeric water quality criteria in Indiana's WQS provide the basis for all IDEM's assessments and 303(d) listing decisions.*

*In order to determine whether a specific pollutant is impairing a designated use, IDEM must have applicable water quality criteria. Indiana's water quality standards do not contain numeric criteria for all substances that could possibly be found in surface waters. However, the fact that a numeric criterion for a given substance does not exist or has not been codified in Indiana's WQS does not necessarily preclude IDEM's ability to determine whether that substance is impairing a designated use.*

*IDEM is currently developing numeric criteria for total phosphorus and algae (chlorophyll a) for natural lakes and reservoirs. Similar criteria are currently being developed separately for Lake Michigan and are expected to address the narrative standards regarding excessive algae in a quantitative manner. With regard to floating debris, IDEM does not currently conduct this type of monitoring nor does the Agency have an assessment methodology with which to evaluate this type of data for the purposes of making recreational use support determinations.*

*Without numeric criteria, such assessments would be based on Indiana's narrative criteria. For assessments based on narrative criteria, any assessment methodology must describe the information that will be considered, the scientific basis for its use, and how that information is to be evaluated for the purposes of determining use support. IDEM has done this for some types of impairments. However, methodology development is complex and resource intensive and as a result, such efforts must necessarily be balanced against other OWQ priorities, particularly with regard to the development of assessment methodologies for other water quality issues. If in the future IDEM determines that a separate assessment methodology unique to Lake Michigan for evaluating floating debris is warranted, it will take the Alliance's recommendations under advisement.*

Comment: Beach Sanitary Surveys and the Alliance's Adopt-a-Beach surveys are two existing and readily available sources of data that IDEM should consider in its assessment of the Lake Michigan shoreline. (AGL)

*IDEM Response: The example data provided by the Alliance for the Great Lakes represents a potentially valuable data set that IDEM could use to determine the degree to which Lake Michigan and its beaches support recreational use support within the context of aesthetics. However, using these data would first require the development of a scientifically sound and defensible assessment methodology. As noted in IDEM's response to the previous comment, such an effort would be complex and resource intensive and must necessarily be balanced with other OWQ priorities.*

Comment: Because the Great Lakes are set apart from other Indiana waters in the WQS, a separate assessment methodology should be developed to meet these separate criteria. The Alliance recommends that IDEM develop a separate aesthetic recreational uses assessment methodology for Lake Michigan which provides

- An evaluation of phosphorus which used the Great Lakes Water Quality Agreement phosphorus target for Lake Michigan of 7 ug/L;
- An evaluation of floating debris for Lake Michigan's shoreline, including onshore litter, and;
- An expanded evaluation of algal growth for Lake Michigan's shoreline including onshore algae.

*IDEM Response: The approaches described by the Alliance for the Great Lakes for the development of an assessment methodology unique to the Lake Michigan shoreline merits IDEM's consideration, and IDEM agrees that such a methodology would likely improve IDEM's ability to better characterize the degree to which the shoreline supports recreational use. As noted in IDEM's response to previous comment, such an effort must necessarily be balanced with other OWQ priorities.*

Comment: It is important for IDEM to identify a valid methodology for identification of impairment determinations for pollutants of concern. IUG continues to urge IDEM to adopt listing methodologies by rule as prescribed in IC 13-18-2-3. Detailed determinations based upon an appropriate methodology that correctly assess the condition of aquatic life and the safety of fish consumption is highly recommended. Targeting the state water quality standards must be conducted in a manner that is well documented, not arbitrary in nature, and is designed for each specific pollutant. In making designated use assessments, IDEM should proceed only with well-documented processes that have been subjected to appropriate scientific review and assessment. (IUG)

*IDEM Response: IDEM agrees that it is important to identify a valid methodology for identification of impairment determinations for pollutants of concern. And, IDEM has done that in its Consolidated Assessment and Listing Methodology (CALM). While IDEM understands the desire by some that the CALM be adopted in rule, such a rule would effectively remove any ability on IDEM's part to incorporate new scientific information into its assessment and listing processes and to re-evaluate its methods when new questions regarding their validity, such as those currently posed by the IUG arise. This is a critical concern to IDEM because it would leave the Agency without the ability to revise in a timely manner its methodology based on input from the public provided during the public comment period or to incorporate new science. Furthermore, important advancements in our understanding of water quality issues and how they impact human and aquatic health and other designated uses would not be translatable into the 303(d) listing process if the CALM was locked into rule. IDEM currently has no plans to promulgate its assessment and listing methodology until concerns regarding its ability to ensure the scientific integrity of the methodology going forward and its ability to address public comments on the methodology in a meaningful way can be adequately resolved.*

Comment: Prior to 2010, IDEM also listed waters as impaired for PCBs or mercury even if they did not exceed the promulgated standards if there was a fish consumption advisory based on high levels of PCBs or mercury in the fish that are present in those waters. In 2010, IDEM decided that those advisories should not be used as a basis for listing waters. We agree. However, IDEM has switched to a new methodology for listing waters as impaired for PCBs and mercury, and we have serious concerns about that new procedure. Under this procedure, IDEM has decided to

apply fish tissue levels developed by U.S. EPA to assess the existence of PCB or mercury impairments. For PCBs, IDEM applied a human health criterion methodology that was developed by U.S. EPA in 2000, which resulted in a value of 0.02 mg. These PCB and mercury fish tissue levels were never promulgated by the Water Board, but rather were developed and adopted by IDEM without any apparent opportunity for public comment or input. These values were publically announced by IDEM for the first time in the Notice as part of the basis for its impairment determinations without providing any prior opportunity for public review. And, the draft list that was developed using these values has been formally submitted to U.S. EPA before any public comments have been received. (IPL)

*IDEM Response: The changes IPL describes were made during the 2008 cycle, not during the 2010 cycle, and the assertion by IPL that these changes were developed and adopted without an opportunity for public input is not supported by the facts. Although the assessments were still underway at the time the draft 2008 303(d) list was published for public comment, the revised methodology was in fact made available for public comment when the 2008 notice of public comment period was published on September 26, 2007. The public comment period ran until January 31, 2008, allowing not only the 90 days required by state law, but an additional 37 days to give the public ample opportunity to review and provide comment. IDEM presented these changes to the Water Pollution Control Board in a public hearing on November 14, 2007. In response to subsequent requests from the public, IDEM held two more public meetings to provide additional opportunities for discourse with the public, one in Portage, Indiana on January 3, 2008 and the other in Indianapolis, Indiana on January 7, 2008. As is evidenced by these activities, IDEM's continuing goal is to lend as much transparency to its 305(b) and 303(d) processes and the development of its CALM and to solicit input from the public whenever possible.*

Comment: IDEM's listing of waters for PCBs and mercury based on unpromulgated fish tissue values and its listing of waters for impaired biotic communities based on unpromulgated biological index scores is illegal under Indiana administrative law. Moreover, these listings are inconsistent with IDEM's proper decision not to base listings on unpromulgated Tier I and Tier II values. The PCB, mercury and impaired biotic community listings should be removed unless and until appropriate numeric water quality standards for those parameters are promulgated and waters are assessed for attainment of those standards. (IPL)

*IDEM Response: The legal review and determination made by IDEM's Office of Legal Council was limited to the use of derived criteria in IDEM's 305(b) and 303(d) assessment and listing processes and TMDL development. Because IDEM's legal review considered only those issues related to the use of derived criteria, the resulting determination may not be broadly applied to all narrative criteria for which IDEM has established numeric benchmarks for these purposes.*

*IDEM maintains that the use of its benchmarks for mercury and PCBs in fish tissue and its biological benchmarks are scientifically and legally defensible for the purposes of 305(b) and 303(d) assessment and listing processes under both state law and federal regulation.*

*Although IDEM's biological indices have not been formally adopted into Indiana's WQS, there are several rules that relate to the protection of the biotic community. For example, all waters of the state are designated to provide for a well-balanced aquatic community except those specifically exempted by rule (see rules 327 IAC 2-1-3(a)(2); 327 IAC 2-1.5-5(a)(2); 327 IAC 2-1-6(c)). Additionally, many of the narrative standards are designed to protect the aquatic community and one of the goals of the state is to restore and maintain the biological integrity of the state's waters. Designated uses and narrative standards are water quality standards.*

*Therefore the listing of waters with impaired biotic communities is in accordance state law. Additionally, U.S. EPA's regulation at 40 CFR 130.7 states that narrative standards and uses are to be considered for the purposes of 303(d) listing decisions.*

*While Indiana's water quality standards do not specifically identify fish consumption as a designated use, U.S. EPA believes that a fish consumption advisory demonstrates impairment of CWA section 101 (a) "fishable" uses and that the fish tissue monitoring that supports the advisory is sufficiently robust to provide a representative sample of mercury in fish tissue (U.S. EPA, 2010). Because IDEM monitors both mercury and PCBs in fish tissue in the same manner, its PCB monitoring is likewise sufficiently robust to provide a representative sample of PCBs in fish tissue. IDEM's use of U.S. EPA's 2001 water quality criterion for methylmercury in fish tissue and the benchmark IDEM developed for PCBs in fish tissue provide a scientifically valid means for determining whether waters are meeting their "fishable" uses as required by CWA section 101(a) and Indiana's narrative water quality standards, which require that all waters be free of substances in concentrations that, based on the available scientific data are believed to be sufficient to be chronically toxic or carcinogenic to humans (327 IAC 2-1-6 and 327 IAC 2-1.5-8).*

Comment: If IDEM cannot use unpromulgated Tier I and Tier II values in making impairment decisions, then it cannot use the unpromulgated PCB and mercury fish tissue values in making impairment decisions. In fact, the reasons for not using the fish tissue values are even stronger than for Tier I and II values because those numbers are at least derived using a procedure set forth in Board-adopted regulation. The fish values in contrast have no such legal basis. There is no procedure anywhere in the Indiana rules that has led to their adoption. Instead, IDEM simply adopted a number recommended by U.S. EPA in national guidance (for mercury) or derived a number using a procedure recommended by U.S. EPA in national guidance (for PCBs). IDEM even notes that in doing so, it has used assumptions (such as a fish consumption rate) that are different than the assumptions that were used in developing the water quality standards that have been promulgated in Indiana. The numbers used by IDEM for mercury and PCBs have no legal status in Indiana and they cannot be used in making listing decisions. (IPL).

*IDEM Response: IDEM maintains that its derivation of a criterion value for PCBs in fish tissue in accordance with U.S. EPA's recommended methods for deriving ambient water quality criteria for the protection of human health (U.S. EPA, 2006) is a scientifically and legally defensible means of implementing Indiana's narrative water quality standards, which are articulated in Indiana administrative law. See also IDEM's responses to IPL's comment immediately preceding this one and IUG's comment also preceding.*

Comment: The PCB and mercury fish tissue values must be promulgated before use because they meet the definition of a "rule" under Indiana law, which defines a "rule" as the "whole or any part of an agency statement of general applicability that:

- Has or is designed to have the effect of law; and
- Implements, interprets, or prescribes law or policy; or
- The organization, procedure, or practice requirements of an agency."

The PCB and mercury fish values are generally applicable because IDEM is using them to determine impairment, place waters on the 303(d) list, develop and allocate pollutant loadings for multiple water bodies under the TMDL process. These numbers directly affect all existing and future dischargers to a water body on the 303(d) list. PCB and mercury fish tissue values have the effect of law because they are a critical component of the 303(d) listing program that legally categorizes certain water bodies as impaired, which in turn has significant legal consequences. These numbers are used to develop TMDLs, which legally govern discharges and

will also be used to establish legally enforceable permit limits outside the TMDL/303(d) program. IDEM is using these unpromulgated values to create legally binding obligations on dischargers that could require the purchase and installation of expensive pollution control treatment facilities and can lead to civil penalties or worse in the case of violations. The PCB and mercury values also “implement” law because they are used to develop the 303(d) list required by IC 13-18-2-3 and the federal CWA. These values “prescribe policy” because they announce to the state what is and is not an impaired water body. Because the PCB and mercury fish tissue values meet the definition of a rule, they must be promulgated by the Water Pollution Control Board.

*IDEM Response: IDEM has developed numeric benchmarks as a legally acceptable means of determining whether the designated use is supported. While these benchmarks are used for assessment determinations which, subsequently, may necessitate the development of a TMDL, the benchmarks are not used directly to establish NPDES permit limits. If a discharge has a reasonable potential to discharge PCBs (from a remediation), mercury, or a regulated pollutant that could negatively impact the biological community, a water quality based effluent limit (WQBEL) will be established using the water quality standards, not the assessment benchmarks. Therefore, IDEM does not believe that the use of these benchmarks for assessments has the same implication as using derived criteria for assessments since the derived criteria are developed for and are used to establish WQBELs. In contrast, assessments developed now using derived criteria could potentially impact WQBELs in permits issued in the future, although the future permittee may not be able to anticipate that impact at the time of the assessment. Thus, the legal determination that the use of derived criteria for assessments creates a due process issue.*

*Conversely, assessments developed now using benchmarks for biological impairments and fish tissue related impairments would not impact WQBELs in permits issued in the future because the WQBELs would not rely on the benchmarks, but rather the water quality standards and therefore does not create a due process issue. While these benchmarks are used for assessment determinations which, subsequently, may necessitate the development of a TMDL, the benchmarks are not used directly to establish NPDES permit limits. If a discharge has a reasonable potential to discharge PCBs (from a remediation), mercury, or a regulated pollutant that could negatively impact the biological community, a water quality based effluent limit (WQBEL) will be established using the water quality standards, not the assessment benchmarks.*

### **Comments regarding IDEM's Decision Not to Use Derived Criteria in its 305(b)/303(d) Assessment and Listing Processes or in the Development of Total Maximum Daily Loads**

Comment: IDEM's use of derived criteria, as opposed to the codified water quality standards, is correctly determined to be inappropriate for implementation of Clean Water Act Sections 305(b)/303(d) assessment and listing processes. (IUG)

*IDEM Response: IDEM maintains its position regarding decision made in 2010 not to use derived criteria in its Clean Water Act Sections 305(b)/303(d) assessment and listing processes.*

Comment: IDEM should list waters found to be impaired using derived criteria as required by the U.S. EPA. There is no reason to believe that derived criteria are inherently unreliable. While individual derivations have not gone through the procedures used to establish numeric water quality standards, the criteria derivation procedures are set forth in Indiana Administrative Code and have gone through the same rulemaking process used to establish numeric criteria. (SC)

*IDEM Response: IDEM agrees that there is no reason to believe the derived criteria are inherently unreliable. The issue with using derived criteria for assessment determinations is one*

*of due process. Derived criteria are developed for and are used to establish WQBELs. Assessments developed now using derived criteria could potentially impact WQBELs in permits issued in the future, although the future permittee may not be able to anticipate that impact at the time of the assessment. Thus, IDEM made the legal determination that the use of derived criteria for assessments creates a due process issue.*

Comment: The purported due process violation is illusory because a TMDL based on a listing that improperly applies a derived criterion could be challenged under 40 CFR 122.44 (d)(viii)(B) and a permit limit based on a TMDL can be challenged using existing procedures for permit challenges. (SC)

*IDEM Response: Derived criteria are developed for and are used to establish WQBELs. Assessments developed now using derived criteria could potentially impact WQBELs in permits issued in the future, although the future permittee may not be able to anticipate that impact at the time of the assessment. While the use of the derived criteria could be challenged at the time of EPA's review of a TMDL, the challenge would not be timely relative to water quality assessment and listing decision that indicated the need for the TMDL. IDEM's legal determination was based on the interpretation that IDEM must provide potentially affected parties sufficient notice and the opportunity to comment on and appeal the proposed criteria prior to their application in the TMDL. Thus, IDEM made the legal determination that the use of derived criteria for assessments creates a due process issue.*

Comment: IDEM's position regarding derived criteria would appear to require that U.S. EPA take over IDEM's 303(d) listing process. Because the rulemaking process for setting numeric criteria is lengthy, failing to list waters for pollutants without codified criteria would mean the clearly impaired waters would not be placed on the 303(d) list for the foreseeable future. (SC)

*IDEM Response: The Clean Water Act assigns States, not U.S. EPA, the responsibility for the water quality standards (WQS) program. WQS development and application are for States to determine. It is not a foregone conclusion that derived criteria are applicable to all waters of the state. They are developed for specific purposes, and the additional analysis to determine how broadly they may be applied and the procedures for doing that are not articulated in Indiana's WQS in the same way as the processes for their derivation.*

*Furthermore, the legal review and determination made by IDEM's Office of Legal Council was limited to the use of derived criteria in IDEM's 305(b) and 303(d) assessment and listing processes and TMDL development. IDEM has not stated that it will not make assessments for anything other than those pollutants for which there are numeric criteria articulated in Indiana's water quality standards. To the contrary, IDEM's assessments for fish consumption and biological impairment indicate otherwise. The numeric benchmarks IDEM uses to make these assessments do not appear in Indiana's water quality standards. Rather, they are interpretations of Indiana's narrative water quality standards, which were developed in a scientifically defensible manner and are legally defensible under both state and federal law for use in IDEM's 305(b) and 303(d) assessment and listing processes. IDEM's response to IPL's second comment in the sections preceding this one also applies here.*

Comment: The draft 2012 303(d) list includes several causes of impairment that, like derived criteria, are not based on numeric criteria codified in Indiana's WQS (e.g. impaired biotic communities). It is inconsistent for the Office of Legal Counsel to selected derived criteria as the only non-numeric criteria where it finds a due process violation thereby setting a precedent that could undermine IDEM's authority to develop the 303(d) list. (SC)

*IDEM Response: IDEM has developed numeric benchmarks as a legally acceptable means of determining whether the designated use is supported. While these benchmarks are used for assessment determinations which, subsequently, may necessitate the development of a TMDL, the benchmarks are not used directly to establish NPDES permit limits. If a discharge has a reasonable potential to discharge PCBs (from a remediation), mercury, or a regulated pollutant that could negatively impact the biological community, a water quality based effluent limit (WQBEL) will be established using the water quality standards, not the assessment benchmarks. Therefore, IDEM does not believe that the use of these benchmarks for assessments has the same implication as using derived criteria for assessments since the derived criteria are developed for and are used to establish WQBELs. Assessments developed now using derived criteria could potentially impact WQBELs in permits issued in the future, although the future permittee may not be able to anticipate that impact at the time of the assessment. Thus, the legal determination that the use of derived criteria for assessments creates a due process issue. Conversely, assessments developed now using benchmarks for biological impairments and fish tissue related impairments would not impact WQBELs in permits issued in the future because the WQBELs would not rely on the benchmarks, but rather the water quality standards and therefore does not create a due process issue.*

Comment: Derived criteria should not be used as the basis for antidegradation implementation as the criteria derivation procedures have not gone through the full public rulemaking process. (IUG)

*IDEM Response: When a proposed discharge contains a regulated pollutant where a derived criterion is calculated to develop a water quality based effluent limit (WQBEL) the proposed discharge must be evaluated to ensure it satisfies antidegradation. The alternative would be to not permit the discharge.*

*All numeric water quality criteria, including derived numeric water quality criteria can and will be used to establish NPDES permit effluent limits in accordance with either 327 IAC 5-2-11.1 for non-Great Lakes portions of the state and 327 IAC 5-2-11.6 for Great Lakes portions of the state. Under these rules, The water quality standards established through the criteria set forth in 327 IAC 2-1-6 and 327 IAC 2-1-8.9 or under the procedures described in 327 IAC 2-1-8.2 through 327 IAC 2-1-8.6 and 327 IAC 2-1-8.9 are not enforceable against any point source discharger until translated into effluent limitations that are then incorporated into an NPDES permit for that discharger, which is made available for public comment and is appealable.*

*Therefore the reasoning used by IDEM to exclude the use of derived criteria for listing waters as being impaired is not applicable to derived criteria being used to establish WQBELs in a NPDES permit or to establish a loading capacity for the receiving water body for antidegradation purposes.*

### **Comments regarding IDEM's Decision Not to Use Total Metals Data in its 305(b)/303(d) Assessment and Listing Processes**

Comment: IDEM's use of total, as opposed to dissolved metals is not supported by the state water quality standards. IDEM's use of dissolved metals is both legally defensible and scientifically supportable. (IUG)

*IDEM Response: IDEM maintains its position regarding decision made in 2010 to use dissolved metals data in its Clean Water Act Sections 305(b)/303(d) assessment and listing processes.*

Comment: It is unclear from the publicly noticed draft 303(d) list to what extent IDEM has dissolved metals data, site-specific hardness data that would allow a translation of total metals to dissolved values, and/or has exercised any discretion or common sense in deciding to exclude waters that are almost certainly impaired for total metals based on comparison of total metals data and the known conditions in Indiana waters. It does appear clear that IDEM's decision not to list waters as impaired by certain metals for which there is no dissolved data biases the list against listing of waters that receive metal discharges. (SC)

*IDEM Response: IDEM's decision to base its water quality assessments decisions for metals on dissolved data is consistent with the Indiana's water quality criteria stated in the state's water quality standards. The water quality criteria are expressed as the dissolved fraction of the metal because that is the fraction that is biologically available and thus potentially harmful to aquatic life. The criteria are not applicable to total metals because their application would result in an overestimation of toxicity. Within the context of 303(d) listing, applying the dissolved criteria to total metals data could potentially result in the listing of numerous waters for metals impairments that do not actually exist. While it may be tempting to argue that these types of errors are acceptable because they represent the worst case scenario, IDEM must consider the costs associated with such a highly conservative approach and the resulting decision errors in its assessments and listing processes. These types of errors result in wasted resources working to restore waters that are not really impaired, likely at the expense of working on those that are impaired.*

Comment: IDEM could use the whole metals data and compare that with the dissolved criteria. Admittedly, in some cases this would lead to more listings than would occur were dissolved metals data to be available. But, this is preferable to systematically failing to list a whole class of waters. (SC)

*IDEM Response: The primary concern for IDEM is not whether waters are listed for metals but that they are accurately listed for metals. IDEM's response to the previous comment applies here.*

Comment: IDEM could use the conversion factors provided for metals in Indiana's WQS. In its legal determination, IDEM's Office of Legal Council rejected this approach based on language in U.S. EPA guidance that cautions against the use of conversion factors apparently without consideration of additional guidance provided by U.S. EPA that as a worst case scenario, the conversion factors may be used as translators if a site-specific translator is not developed. (SC)

*IDEM Response: IDEM did consider the option of using the conversion factors as translators. However, it determined that doing so would result in inaccurate assessments. IDEM's response to the second comment in this section also applies here.*

Comment: IDEM could use its knowledge of Indiana waters to make reasonable judgments about waters that are impaired under the dissolved standard under almost all conditions that are likely to be present in Indiana waters. (SC)

*IDEM Response: IDEM is now collecting dissolved metals in its probabilistic monitoring program and at twelve of its fixed station monitoring sites to ensure that the appropriate data is available for assessment and listing decisions going forward. IDEM may make decisions based on best professional judgment in cases where the judgment of IDEM's scientists do not agree with the assessment decision that would result from the strict application of IDEM's assessment methodology. However, this is the exception rather than the rule, and IDEM anticipates that the*

*need to do this with its metals assessments will be minimal when dissolved metals data becomes available.*

### **Comments regarding the Revision of IDEM's Assessment Methods for Methylmercury in Fish Tissue**

Comment: A properly prepared composite of samples from multiple fish of the same species and approximate size is the best way to derive an estimate of the methylmercury in fish tissue from a specific location. Analyzing methylmercury levels in individual fish is only appropriate if the specimen was obtained from the impaired waterbody, is known to be harvested by fishermen for consumption and too few fish are available to create a composite sample. Composite samples of actual fish tissue should be stratified by fish length as is set forth in U.S. EPA's protocol. (IUG)

*IDEM Response: IDEM is in full agreement. IDEM's sampling methodology calls for samples made up of a composite of multiple fish of the same size class. Ideally sampling efforts target composites so that the total length of the smallest fish is within 90% of the total length of the largest fish making up the composite sample. However, based on the U.S. EPA protocol, the total length of the smallest fish may be between 75-90% when a composite sample would otherwise not be possible given the catch or to increase the number of fish making up the composite. The composite provides a way of estimating average without analyzing multiple individual fish. However, only analyzing a composite does not provide an estimation of population variance. Analyzing an individual fish enables IDEM to gain a data point on a species from a water body or region where information might not otherwise be obtainable. A perfect example is with the trophic level 4 species. Their numbers are much more limited at any particular site and so obtaining multiple individuals of the appropriate size for compositing might not be possible. In the context of a statewide database or a large set of data from a particular water body, these individual fish data points become very valuable. The sum of a large data set provides important information regarding the particular contaminant, as opposed to a single data point.*

Comment: With regard to the actual fish tissue used for analysis, the filet with the skin removed is appropriate because most consumers do not eat the skin along with the fish. (IUG)

*IDEM Response: IDEM's preparation protocols are based on those established in the "Protocol for a Uniform Great Lakes Sport Fish Consumption Advisory" (Anderson et al. 1993), the Mercury Addendum (Anderson et al. 2007), and protocols established within the Indiana Interagency Fish Consumption Advisory Workgroup. The State of Indiana, through agreement within the Indiana Interagency Fish Consumption Advisory Workgroup (1995), establishes FCAs based on the Protocols for all waters of the State. IDEM has standardized the preparation to be skin-on for scaled species and skin-off for smooth skinned species as per the Protocols.*

Comment: The process for fish tissue sample preparation, compositing, and analysis must be thoroughly documented. (IUG)

*IDEM Response: IDEM's preparation protocols are based on adherence to protocols established in the "Protocol for a Uniform Great Lakes Sport Fish Consumption Advisory" (Anderson et al. 1993), the Mercury Addendum (Anderson et al. 2007), and protocols established within the Indiana Interagency Fish Consumption Advisory Workgroup.*

Comment: Weighting factors for different trophic levels (TL3 and TL4) should be done based on the relative consumption of species within a trophic level. U.S. EPA recommends that fish tissue

levels be assessed using the trophic level weighted average fish tissue concentration which in the case of mercury should be methylmercury not simply total mercury. (IUG)

*IDEM Response: IDEM's revisions to its assessment methods for methylmercury in fish tissue will accomplish this. It is very well known in the scientific literature that the vast majority of the mercury analyzed in fish tissue is methylmercury and for all practical purposes we assume that all of the total mercury is methyl. All of the Great Lake states make this same assumption. This is a conservative approach for the protection of human health in FCAs.*

Comment: ORSANCO is highly supportive of IDEM's use of U.S. EPA's recommended methodologies for using contaminants data to assess the fish consumption use. This approach has been endorsed by ORSNCO's Technical Committee, which is composed of the heads of eight states' water protection departments. ORSANCO uses this approach on a pool-basis for the Ohio River.

*IDEM Response: IDEM agrees with ORSANCO's approach in using U.S. EPA's methods for implementing the national water quality criterion for methylmercury in fish tissue and has incorporated the results of ORSANCO's analysis for the Ohio River into the state's 2012 303(d) list. With this addendum, IDEM has revised its Consolidated Assessment and Listing Methodology to reflect ORSANCO's use of these methods and to reflect IDEM's decision to use the same approach for analyzing methylmercury concentrations in fish tissue from waters throughout the state.*

Comment: We understand based on IDEM's May 23, 2012 presentation of its draft 303(d) list to the Water Pollution Control Board on May 23, 2012 that IDEM is planning to change the methods it uses to assess waters for mercury impairment before submitting a final 303(d) list to U.S. EPA for review and approval. While the presentation summarized the planned changes, there is obviously no way for IPL to apply the changed methodology to determine if particular segments are still impaired. And IPL has had no opportunity to review the revised methodology and comment on whether it is appropriate. For IDEM to proceed to finalize the list without providing IPL and other stakeholders an opportunity to comment on the proposed listings would be a clear violation of due process. IDEM should clearly document its assessment and listing decisions, provide the listing methodology and the data used to support its listing decisions, and then show how the methodology was applied to make them. This information should be provided to stakeholders for review and comment before IDEM submits the finalized list to U.S. EPA. (IPL)

*IDEM Response: IC 13-18-2-3 says:*

*"The department [IDEM], before submitting the list to the United States Environmental Protection Agency, shall:*

- (1) publish the list in the Indiana Register;*
- (2) make the list available for public comment for at least 90 days; and*
- (3) present the list to the board.*

*If the United States Environmental Protection Agency changes the list, the board shall publish the changes in the Indiana Register and conduct a public hearing within ninety (90) days after receipt of the changes."*

*Accordingly, IDEM published its draft 303(d) list in the Indiana Register on February 8, 2012 for the required 90-day public comment period plus an additional 37 days and presented it to the Water Pollution Control Board on April 23, 2012.*

## Comments Regarding Category 5B Impairments

Comment: Since IDEM regulates air pollution as well as water pollution, it should not simply ignore the issue of fish tissue contaminants because it believes that a TMDL is not the appropriate approach. (SC)

*IDEM Response: IDEM's placement of impairments for mercury and PCBs in fish tissue into a separate category should not be misinterpreted as IDEM making a decision to ignore the important issue of fish tissue contaminants. As explained in this and previous cycles, IDEM is still waiting – now more than 10 years – for U.S. EPA to provide the necessary guidance to develop TMDLs for these types of pollutants. The complexities associated with these types of pollutants promise to make development of scientifically defensible TMDLs for them a very time consuming and arduous process. To embark upon this work using a “try-it-and-see” approach is simply not a cost-effective use of the IDEM's limited resources, particularly when there remain many impairments on the 303(d) list for which IDEM has sound methods for TMDL development already in place and significantly more progress can be made by directing its resources to impairments where TMDL implementation will improve water quality.*

*IDEM has not ignored fish tissue contaminants. In order to effectively address any environmental problem, its source(s) must be adequately and accurately characterized. This was one of the primary reasons why IDEM's Office of Water Quality revised its fish tissue assessment methodology in 2008 to use site-specific data in assessments rather than basing them on fish consumption advisories, which tend to obscure the location and extent of impairment for the CWA goals of protecting and restoring the fishable use of the nation's surface waters. IDEM has also requested contractor support from U.S. EPA to conduct a thorough review of all readily available information regarding mercury to determine what additional information may be needed to develop a TMDL for mercury.*

Comment: In its 2012 Integrated Report, IDEM says it will continue to work with the general public and the U.S. EPA on actual steps needed ultimately to address fish tissue related impairments. The same statement appears in IDEM's 2010 Integrated Report. What actual steps has IDEM taken in the past two years to address fish tissue contamination? (SC)

*IDEM Response: IDEM has developed programs and initiatives to ensure that the information presently available regarding point and nonpoint sources of mercury is used effectively to reduce the amount of mercury entering state waters to the extent possible. For example, point source discharges of mercury into Indiana waters continue to be regulated through IDEM's National Pollutant Discharge System (NPDES) in the Office of Water Quality. IDEM also has a number of voluntary programs and initiatives in place to help control sources of mercury. IDEM's Mercury Awareness Program educates citizens on the environmental and health-related dangers associated with mercury and encourages reducing the use of mercury-containing devices and to properly dispose of mercury-containing items. IDEM also provides assistance to Healthcare facilities, dental offices and other facilities that use products containing mercury in developing and implementing a mercury pollutant minimization program plan. Most of these programs were initiated more than two years ago and are still in place today.*

*More recently, IDEM has requested contractor support from U.S. EPA to conduct a thorough review of all readily available information regarding mercury to determine what additional information may be needed to develop a TMDL for mercury.*

Comment: IDEM submitted a long-term TMDL development schedule which includes some PCB impairments that date back to 1996 and which identifies a target date for their completion

of 2011. These TMDLS have yet to be developed. The target date for all mercury impairments is 2025. (SC)

*IDEM Response: The CWA does not clearly define the timeline for TMDL development. However, in response to the 1998 Federal Advisory Committee Act (FACA) committee's recommendations, U.S. EPA has issued guidance for states to develop expeditious schedules of not more than eight to 13 years. In accordance with the CWA, the 303(d) list guides TMDL development. IDEM works with U.S. EPA every 305(b)/303(d) assessment and listing cycle to determine the number of TMDLs that must be developed in order to keep pace with the number of new impairments identified each cycle and to meet the goal of completing TMDLs for impairments within 15 years of their listing. IDEM's long term TMDL schedule identifies an ideal timeline based on the 1998 FACA recommendations and also taking into account other factors that affect TMDL development. To develop both its long term and short term TMDL schedules, IDEM generally prioritizes TMDL development to address impairments identified on its earliest 303(d) lists. As noted in IDEM's response to the first comment in this section, lacking sufficient guidance from U.S. EPA on TMDL development for fish tissue related impairments, IDEM has opted instead to focus its limited resources on developing TMDLs for impairments for which IDEM has sound methods already in place to develop TMDLs that U.S. EPA will approve.*

Comment: IDEM and the U.S. EPA must no longer ignore this serious public health concern. The EPA should not accept the separate 5B category for these impaired waters. Both the agency and the department should begin to take positive measures to remediate the impairments or to prevent more waters from becoming impaired due to contaminated fish tissue. (SC)

*IDEM Response: IDEM began using Category 5B with the 2006 303(d) list. IDEM's use of Category 5B does not preclude any efforts by IDEM to work on these issues or alleviate IDEM from any requirement to address these impairments.*

Comment: A conventional TMDL is not the appropriate approach to addressing impaired biotic communities (IBCs). IDEM should place impaired biotic community (IBC) listings in a separate category – they are not pollutants. Rather, they are a symptom of other unidentified stressors in the environment (e.g. habitat). Category 5B is a more appropriate response to address the IBC listing until further investigation identifies the actual stressor(s) that led to the impairment. Category 4C may also be appropriate if it is found that the impairment is not caused by a pollutant but is attributable to other types of pollution for which a TMDL cannot be calculated. (CEG)

*IDEM Response: While it is true that impaired biotic communities are a symptom of other underlying issues, which may or may not be pollutants for which a TMDL can be calculated, the TMDL process involves the additional sampling and analysis needed to more accurately determine sources for these impairments. To date, IDEM has developed 48 TMDLs for impaired biotic communities which have all received U.S. EPA approval and many of which are now being implemented by watershed groups. IDEM anticipates that once the practices currently being implemented to improve water quality in these watersheds have had time to work, they will produce measureable improvements in water quality.*

### **Comments Regarding 305(b)/303(d) Assessment and Listing Scenarios Currently Under Consideration by IDEM as the Agency Proceeds with its Development of Nutrient Criteria for Lakes**

Comment: IDEM's assessment and listing methodology should not require a minimum of twelve sets of paired TP and *chl*-a samples collected four times per year over three consecutive years. Hinging IDEM's ability to make an assessment of phosphorus-impaired waters on such a large amount of data could cripple IDEM's implementation of nutrient criteria for lakes. IDEM should instead set this amount of data as a goal, not an absolute minimum data requirement for assessment and that a waterbody can be assessed as impaired if the available data supports such a determination. For example, if 11 data sets are available on a given lake from the past five years and more than 10% of those samples show exceedances of TP or *chl*-a, then that lake should be listed as impaired. If there are objections to this approach, then those objecting can provide additional data needed to ensure IDEM meets its goal of at least twelve paired samples. (ELPC)

*IDEM Response: In setting minimum data requirements for assessment, IDEM is attempting to reduce the potential for decision error. Within the context of assessments, there are two types of errors that are of particular concern to IDEM. Type I errors (i.e. a false positive) results in identifying a waterbody as impaired when it really is not. Type II errors (i.e. false negatives) result in not identifying impairments that do exist. Both types of errors have negative consequences. Type I errors result in potentially wasted resources working to restore a waterbody that is not really impaired, possibly at the expense of working on those that are. And, Type II errors result in impaired waterbodies going undiscovered and thus unrestored.*

*More data means fewer decision errors. The monitoring options and data minimums IDEM presented at its nutrient stakeholder meeting on February 28, 2012 and to which the Environmental Law and Policy Center is referring in this comment have not been decided. As IDEM moves forward with its rulemaking for nutrient criteria for lakes, it will explore all options for obtaining the amount of data necessary to make robust CWA assessment and listing decisions through its own monitoring programs and/or external parties.*

Comment: The five-year limit on data should not apply if there is not available data within that timeframe. In cases where there is no data available for the past five years, the methodology should require evaluation of other available data. Under no circumstances should lakes be removed from an impaired waters list simply because no one has taken water quality samples there for five years. (ELPC)

*IDEM Response: U.S. EPA has defined current data as data no older than five years (U.S. EPA, 1997), and IDEM generally uses the most recent five years' worth of data available in most of its assessments. This said, there is nothing prohibiting IDEM from using older data, and IDEM may yet decide that this is necessary as it moves forward in the revision of the its current assessment methodology for lakes to implement numeric nutrient criteria when they are adopted into rule.*

*With regard to the lakes currently identified on the 303(d) list as impaired for nutrients, no lake will be delisted simply based on the age of the data used to make the original assessment. All the available data for each lake currently identified will be reevaluated under the revised methodology. If the data indicates that the lake is now meeting water quality standards, it will be delisted. But, if the lake is shown to be impaired or if the data are insufficient to make an assessments using the new assessment methods and /or criteria, the lake will remain listed until the necessary data can be collected to determine if the previously identified impairment currently exists.*

Comment: IDEM should adopt the 10% rule approach for the allowed number of sample exceedances. Of the options presented at its February 28, 2012 meeting with external stakeholders, the 10% rule, where results are not averaged and an impaired is identified if either 10% of the TP values or 10% of the chl-a values exceed the water quality criteria is the only valid approach from a water quality perspective. Averaged values, whether an arithmetic average or a geometric mean, tend to mask water quality problems by obscuring individual occurrences of water quality problems such as excessive algal blooms and fish kills, and provides an inaccurate impression of the health of the lake being sampled. Given this, IDEM should adopt the 10% rule to determine impairments. (ELPC)

*IDEM Response: This approach is one of a number of the possible approaches currently being considered by IDEM to determine the allowable number of exceedances of the nutrient criteria being developed, which include:*

- *No more than 10% of the results for either parameter may exceed the applicable criterion;*
- *The geometric mean of all results for either parameter may not exceed the applicable criterion;*
- *None of the annual arithmetic average results for either parameter may exceed the applicable criterion;*
- *None of the annual geometric mean results for either parameter may exceed the applicable criterion.*

*All of these approaches have their strengths and weaknesses, and the extent to which averaging may mask water quality problems is an important consideration that IDEM will evaluate more fully as it moves forward with methodology development. IDEM plans to apply each of these approaches to a number of data sets and compare the result to better evaluate their relative utility in making reliable water quality assessment decisions.*

## **CHANGES TO IDEM'S 2012 303(D) LIST SUBMITTED BASED ON INFORMATION RECEIVED SINCE ITS SUBMISSION TO U.S. EPA ON APRIL 1**

### ***Additional Changes Made to Category 5 Based on Changes in Segmentation***

IDEM's review also identified a total of forty eight (48) impairments that should be removed from Category 5 based on changes in segmentation (Table 1). These impairments were inadvertently listed under their original AUIDs, which are now retired. The majority of these impairments were already correctly listed under their new AUIDs. A total of fifteen (15) were not and have been added back to Category 5 under their new AUIDs (Table 2).

Table 1: Additional impairments removed from Category 5 based on changes in segmentation.

BASIN	HYDROLOGIC UNIT CODE	COUNTY	ASSESSMENT UNIT ID	ASSESSMENT UNIT NAME	CAUSE OF IMPAIRMENT
UPPER WABASH	5120101080060	HUNTINGTON	INB0186_00A	ROCK CREEK - UNNAMED TRIBUTARY	PCBS (FISH TISSUE)
UPPER WABASH	5120101080060	HUNTINGTON	INB0186_00B	ROCK CREEK - UNNAMED TRIBUTARY	PCBS (FISH TISSUE)
UPPER WABASH	5120101080060	HUNTINGTON	INB0186_00C	ROCK CREEK - UNNAMED TRIBUTARY	PCBS (FISH TISSUE)
UPPER WABASH	5120101080060	HUNTINGTON	INB0186_00D	WHITELOCK DITCH	PCBS (FISH TISSUE)
UPPER WABASH	5120101080060	HUNTINGTON	INB0186_00E	GORDON DITCH	PCBS (FISH TISSUE)
UPPER WABASH	5120101080060	HUNTINGTON	INB0186_00F	REDDING DITCH	PCBS (FISH TISSUE)